



Delfield[®]

SERVICE MANUAL

Versa Drawer Refrigeration Units

MODELS:

F17VD84	18650VDL
F18VD50	18650VDR
F18VD82	18682VDL
F2984VDL	18682VDR
F2984VDR	

**Please read this manual
completely before attempting
to service this equipment.**



RETAIN THIS MANUAL FOR FUTURE REFERENCE.

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Endis[®]

IMPORTANT WARNINGS AND SAFETY INFORMATION



WARNING

ANY REFRIGERATION SERVICE PROCEDURES DESCRIBED IN THIS MANUAL MUST BE PERFORMED BY A CERTIFIED EPA TECHNICIAN.

Read this manual thoroughly before installing, operating, or performing maintenance on the equipment.

FAILURE TO FOLLOW INSTRUCTIONS IN THIS MANUAL CAN CAUSE PROPERTY DAMAGE, INJURY OR DEATH.

- Do not store or use gasoline or other flammable vapors or liquids in the vicinity of this or any other appliance.
- Unless all covers and access panels are in place and properly secured, do not operate this equipment.
- Damp or wet hands may stick to cold surfaces.
- Allow heated equipment to cool down before attempting to clean or service.
- Read and understand instruction manuals and labels. Learn all applications and restrictions for the service performed.
- Do not remove ground prong from service equipment cords.
- Use extension cords rated for the intended service and as short in length as possible.
- Use refrigerant hoses SAE J196-1992 approved with a shutoff device within 12 inches of the ends.
- Make sure recovery tanks are DOT approved for use with the type of refrigerant being serviced.
- Service units only in well ventilated areas using mechanical ventilation systems.
- Follow all accessory advisories and instructions.
- Do not operate any unit with defective or damaged parts.



WARNING

Serious injury or death can occur from inhaling high concentrations of refrigerant vapors. These vapors also reduce oxygen levels in confined areas. Contact with liquid can cause frostbite. All containers, equipment and hoses are under high pressure. Do not puncture or damage these components.



CAUTION

Observe the following:

- *Keep the equipment area free and clear of combustible material.*
- *Maintain adequate clearance for air openings.*
- *Operate equipment only on the type of electricity indicated on the data plate.*
- *Unplug the unit before making any repairs.*
- *Handle all refrigerant hoses, recovery tanks, lines and other vessels as containers under pressure at all times.*
- *Retain this manual for future reference.*

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INTRODUCTION

GENERAL

Versa Drawer series refrigeration units have two or four drawers, each of which can operate in one of four modes at any time. The two-drawer and four-drawer models feature countertop-height stainless steel work surfaces. A two-drawer Lo Profile unit is also available.

Refrigeration mode: The drawer operates as a refrigerator, maintaining the refrigeration set point between 32°F and 41°F.

Freezer mode: The drawer operates as a self-defrosting freezer, maintaining the freezer set point between -5°F and 5°F.

Thaw Cabinet mode: The drawer operates as a thaw cabinet, maintaining the thaw cabinet set point between 32°F and 50°F using hot gas and refrigeration as required for a fixed time period. Once the period has elapsed, the drawer mode is changed to refrigeration mode.

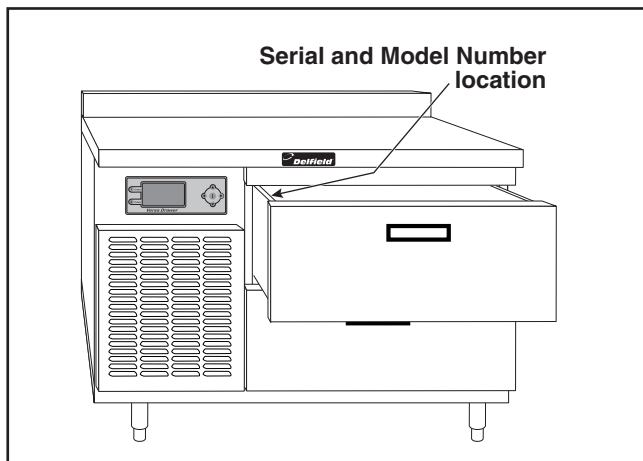
Convenience Chiller mode: The drawer operates as a convenience chiller, maintaining the convenience chiller set point between -5°F and 25°F for four hours. Once the period has elapsed, the drawer mode is changed to refrigeration mode.

All units have stainless steel exteriors and interiors. Drawer gaskets are magnetic and mount to the drawer, snapping in place. The gaskets are removable without tools.

This manual covers standard units. If you have a custom unit, consult the service department at 800-733-8829.

SERIAL AND MODEL NUMBERS

The serial and model numbers are located inside Drawer 1 on the left side.



THAW SYSTEM

Hot gas is used for the thaw cabinet operation and the defrost mode. A hot gas solenoid controls the heat. In the defrost mode the hot gas will be used to warm the evaporator coil when a drawer is used as a thaw cabinet. The hot gas solenoid will open to maintain drawer temperature.

REFRIGERATION SYSTEM

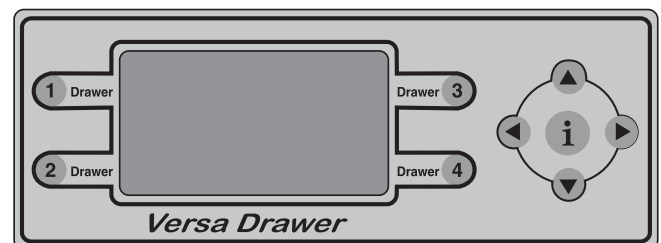
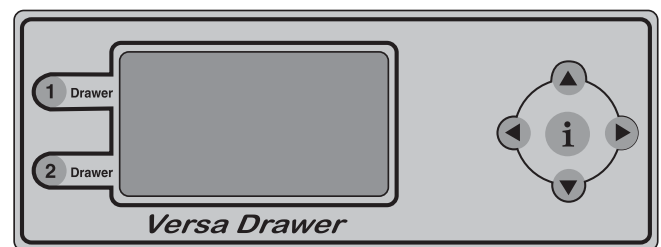
The refrigeration system is used in all modes. The refrigeration solenoid controls refrigerant. Two compressors run in parallel operation in a four-drawer system while one compressor operates the two-drawer system.

TEMPERATURE MONITORING

Temperature sensors are located in each drawer. The drawer temperature is displayed on the control panel.

CONTROLLER

The controller provides information indicating the drawer mode. In addition, the actual temperature of the drawer is displayed. The push button tabs, located next to the display screen, represent each drawer. These tabs are used to select the drawer for control. The control display located on the right side of the control panel is used to toggle between control screens and to select drawer modes and temperatures.



SPECIFICATIONS

MODEL NUMBER	VOLTS	HP	COMP POS	AMPS	HEIGHT (inches)	WIDTH (inches)	DEPTH (inches)	NO. OF DRAWERS	SHIP WGT (lbs)	NEMA PLUG
F18VD50	115	1/3	Left	6.0	36	50	31.5	2	520	5-15P
F18VD82	115	(2) 1/3	Left	12.0	36	82	31.5	4	720	5-15P
F17VD84	115	1/3	Left	6.0	36	84	31.5	2	750	5-15P
F2984VDL	115	1/3	Left	6.0	26	84	31.5	2	850	5-15P
F2984VDR	115	1/3	Right	6.0	26	84	31.5	2	850	5-15P
18650VDL	115	1/3	Left	6.0	34	50	31.5	2	520	5-15P
18650VDR	115	1/3	Right	6.0	34	50	31.5	2	520	5-15P
18682VDL	115	(2) 1/3	Left	12.0	34	82	31.5	4	720	5-15P
18682VDR	115	(2) 1/3	Right	12.0	34	82	31.5	4	720	5-15P

Refrigeration System

HFC-404A Refrigerant

Electrical Connections

115 Volt, 60 Hertz, single phase, 3-wire, grounded, 8' cord with plug

Drawers

32", 11-12 gauge stainless steel, 12" X 20" pan capacity

Legs

6" adjustable

Casters

5" casters, with and without brakes

INSTALLATION

See the Installation and Operation Manual for installation information.

OPERATION

See the Installation and Operation Manual for operational information.

OPERATOR MAINTENANCE

See the Installation and Operation Manual for operator maintenance information.

COMPONENT REMOVAL AND REPLACEMENT

Lo Profile and 2-Drawer refrigeration units use one compressor, one accumulator, one receiver and four solenoids. In addition, one evaporator is used for each drawer along with support components. The 4-Drawer refrigeration unit uses two complete 2-Drawer units. Component removal and replacement is similar for both types.

Perform the following procedures to remove and replace parts. To eliminate mistakes when ordering parts, always provide the following information:

- Model Number
- Serial Number

COVERS AND PANELS

Front Louvered Panel

NOTE: Front louvered panel removal is similar for all models.

1. Lift up on louver from bottom and pull away from unit (Figure 1).
2. Reverse the above step to install the front louvered panel.

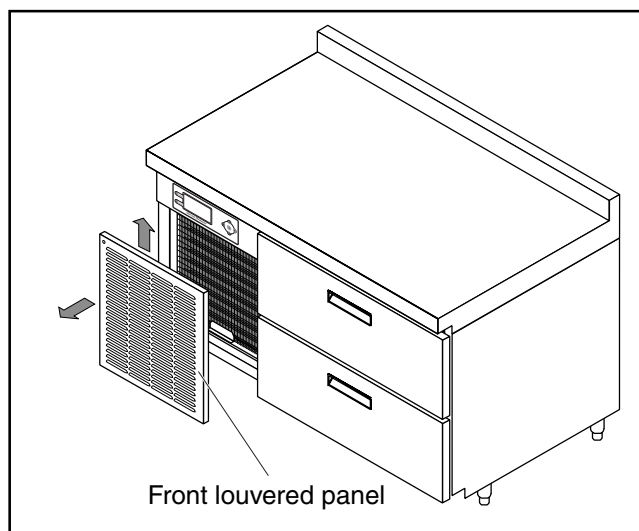


Figure 1. Front Louvered Panel

Louvered Access End Panel

NOTE: Louvered access end panel removal is similar for all models.

1. While supporting the louvered access end panel, remove mounting screws.

2. Lift louvered access end panel out and up to remove.
3. Reverse the above steps to install the louvered access end panel.

Rear Panel

1. While supporting the rear panel, remove 11 screws.
2. Remove the rear panel from the unit.
3. Reverse the above steps to install the rear panel.

DRAWER ASSEMBLY

Drawer Removal

1. Empty the drawer.
2. Pull and lift the drawer to remove it from the unit (Figure 2).

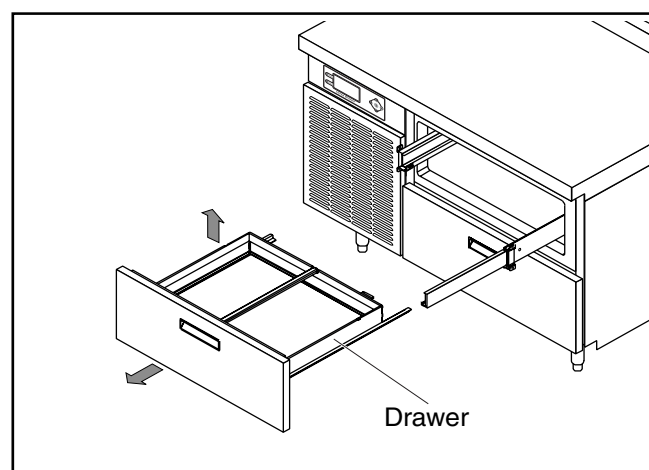


Figure 2. Drawer Removal

Drawer Gasket

The drawer gasket is installed on the inner side of the drawer front and fitted into a slot (Figure 3).

1. Remove the drawer gasket by carefully pulling the drawer gasket out of the groove.
2. Reverse the above step to install the drawer gasket.

Drawer Front Assembly

1. Remove the drawer from the refrigeration unit (Figure 3).
2. Place the drawer on a solid surface with the drawer front assembly down.
3. Remove six screws securing the drawer front assembly to the drawer.
4. Reverse the above steps to install the drawer front assembly.

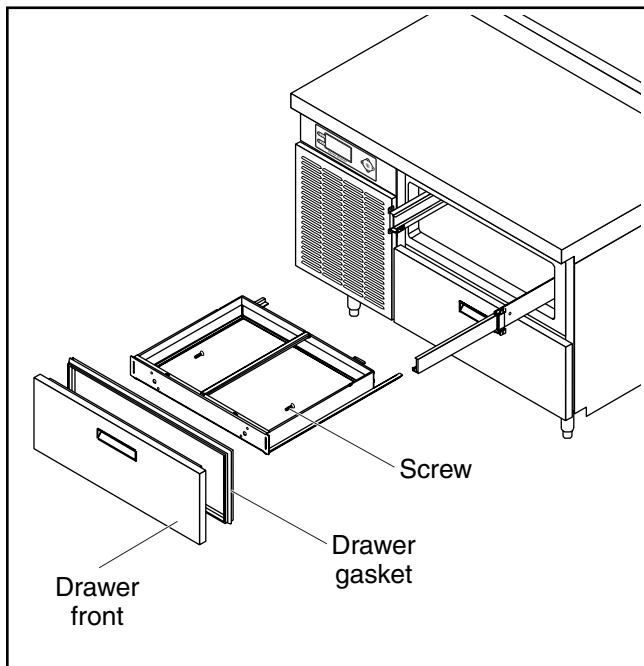


Figure 3. Drawer Front Assembly

Return Air Baffle

1. Remove screws from return air baffle (Figure 4).
2. Remove blue wires from drawer switch while supporting air baffle.
3. Reverse the above steps to install the return air baffle.

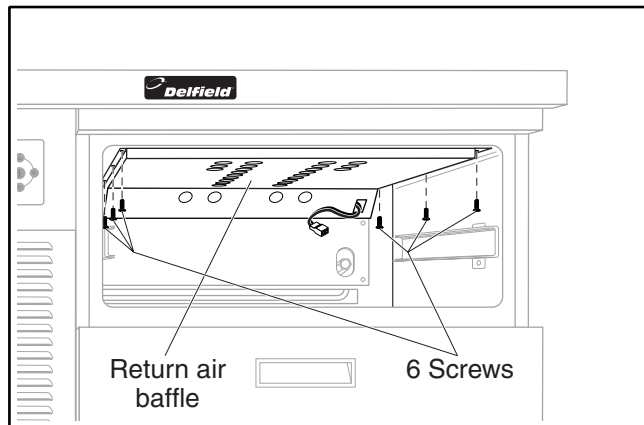


Figure 4. Return Air Baffle

Drawer Switch

1. Disconnect power from the refrigeration unit.
2. Remove the drawer as described previously.
3. Reach inside the box and carefully remove the drawer switch out of the mounting slot (Figure 5).

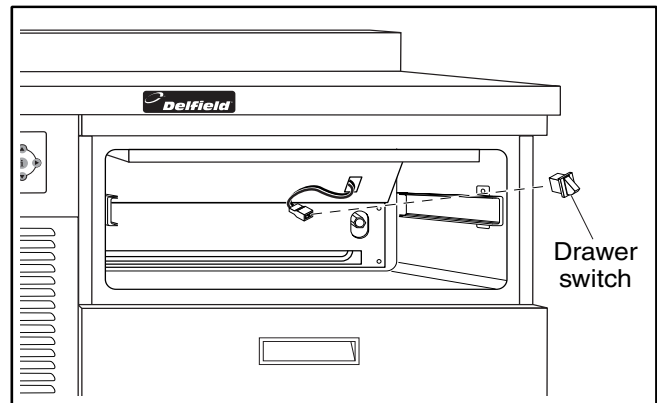


Figure 5. Drawer Switch

4. Tag and disconnect the wiring harness from the drawer switch.
5. Reverse the above steps to install a replacement drawer switch.

EVAPORATOR COIL ASSEMBLY COVER

NOTE: Evaporator coil assembly cover removal is similar for all models.

1. The evaporator coil assembly cover is mounted behind the drawer (Figure 6).
2. Reach inside the box and remove four screws from the front of the evaporator coil assembly cover.

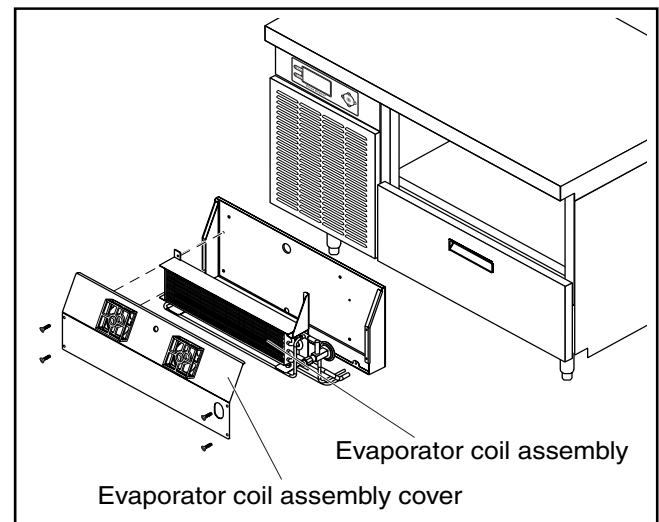


Figure 6. Evaporator Coil Assembly Cover

3. Tag and disconnect the fan electrical connectors.
4. Remove the evaporator coil assembly cover from the box.
5. Reverse the above steps to install the evaporator coil assembly cover.

EVAPORATOR COIL ASSEMBLY

1. Disconnect power from the refrigeration unit.
2. Remove the drawer as described above.
3. Remove the rear panel as described in **COVERS AND PANELS**.
4. Remove the evaporator coil assembly cover as described previously.
5. Follow the EPA guidelines for **RECOVERY, PURGING/TESTING AND RECHARGING REFRIGERATION UNIT** to recover the refrigerant from the refrigeration system.

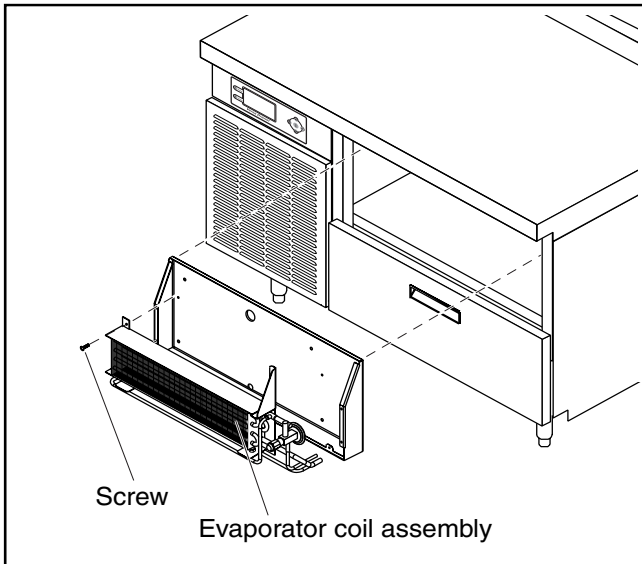


Figure 7. Evaporator Coil Assembly Removal

6. From the rear of the refrigeration unit, unsolder the refrigeration lines from the evaporator coil assembly.
7. Carefully remove the expansion valve thermocouple from evaporator line.
8. Remove the evaporator coil assembly from the unit (Figure 7).
9. Reverse the above steps to install a replacement or repaired evaporator coil assembly. Recharge the system as described in the EPA guidelines for **RECOVERY, PURGING/TESTING AND RECHARGING REFRIGERATION UNIT**.

EXPANSION VALVE

1. Disconnect power from the refrigeration unit.
2. Remove the evaporator coil assembly cover as described in **COVERS AND PANELS**.
3. Remove the expansion valve thermocouple from the evaporator line.

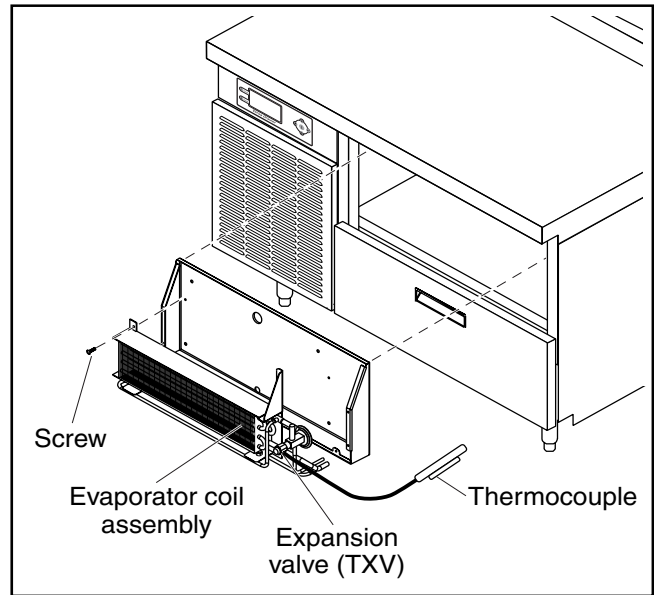


Figure 8. Expansion Valve and Thermocouple

4. Reach inside the drawer box and unsolder the refrigeration lines. Remove the expansion valve and thermocouple from the evaporator housing (Figure 8).
5. Reverse the above steps to install a replacement expansion valve.

CONDENSER FAN BLADE

1. Disconnect power from the refrigeration unit.
2. Remove the louvered access end panel as described in **COVERS AND PANELS**.

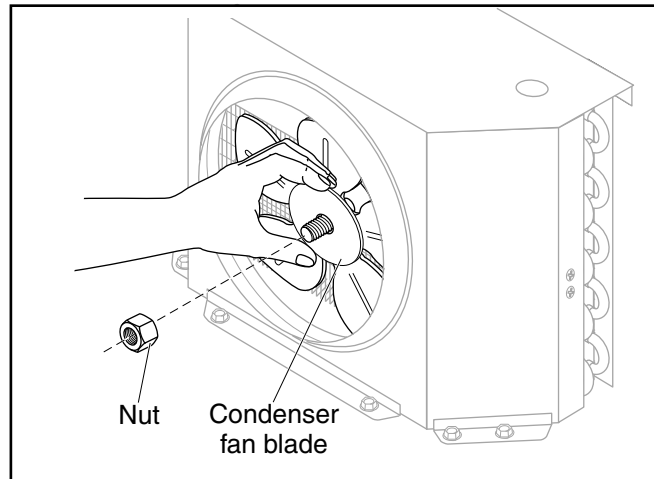


Figure 9. Condenser Fan Blade

3. While holding the condenser fan blade (Figure 9), remove the lock nut from the center of the condenser fan blade.
4. Reverse the above steps to install the condenser fan blade.

CONDENSER FAN MOTOR



CAUTION

Make sure power to the refrigeration unit is disconnected before servicing the condenser fan and condenser fan motor.

1. Disconnect power from the refrigeration unit.
2. Remove the louvered access end panel as described in COVERS AND PANELS.
3. Tag and disconnect the wiring harness at the condenser fan motor.
4. Remove the condenser fan blade as described above.

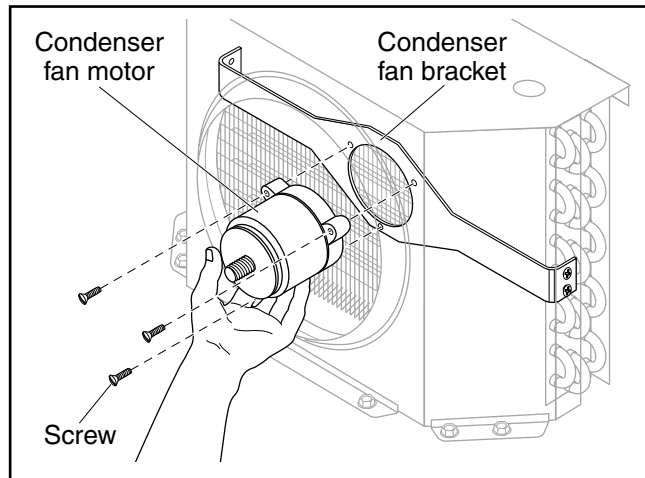


Figure 10. Condenser Fan Motor

5. While supporting the condenser fan motor, remove three screws securing the condenser fan motor to the condenser fan bracket (Figure 10).
6. Reverse the above steps to install a replacement condenser fan motor.

CONDENSER COIL

1. Disconnect power from the refrigeration unit.
2. Remove the front louvered panel as described in COVERS AND PANELS.

- NOTE:** The two-drawer system uses a condenser coil mounted behind the front louvered panel. The four-drawer unit uses two condenser coils stacked behind the front louvered panel. The removal procedure is similar for all models.
3. Refer to the EPA guidelines for RECOVERY, PURGING/TESTING AND RECHARGING REFRIGERATION UNIT to recover the refrigerant from the refrigeration system.

4. Remove the louvered access end panel as described in COVERS AND PANELS.
5. Tag and remove the temperature sensor from the condenser coil.
6. Remove six screws securing the condenser coil inside the machine compartment (Figure 11).
7. Tag and disconnect the condenser fan motor.
8. Unsolder the refrigeration lines from the condenser coil and remove the condenser coil from the unit.
9. Remove four screws securing the condenser coil to the condenser cover and condenser fan bracket.
10. Reverse the above steps to install a replacement or repaired condenser coil.

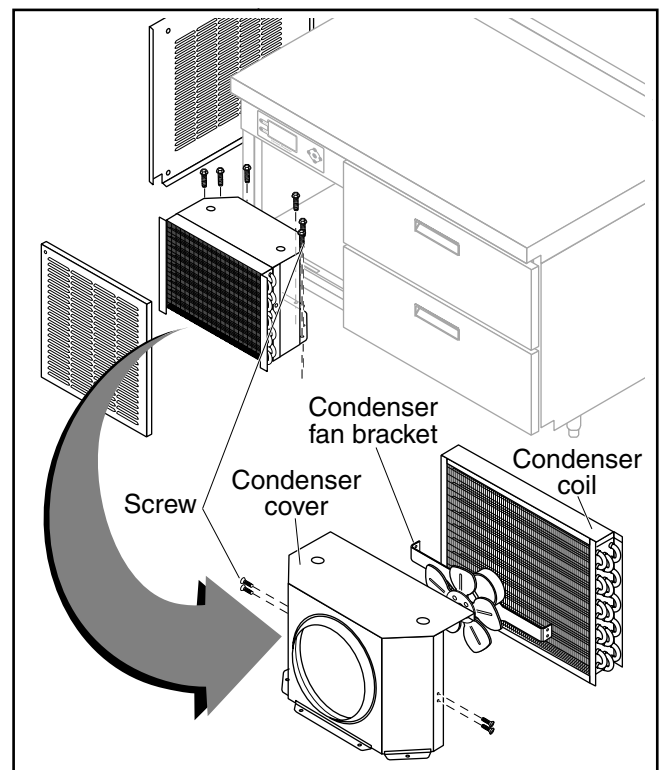


Figure 11. Condenser Fan Blade and Condenser Fan Bracket

COMPRESSOR

1. Disconnect power from the refrigeration unit.
2. Remove the louvered access end panel as described in COVERS AND PANELS.
3. Refer to the EPA guidelines for RECOVERY, PURGING/TESTING AND RECHARGING REFRIGERATION UNIT to recover the refrigerant from the refrigeration system.

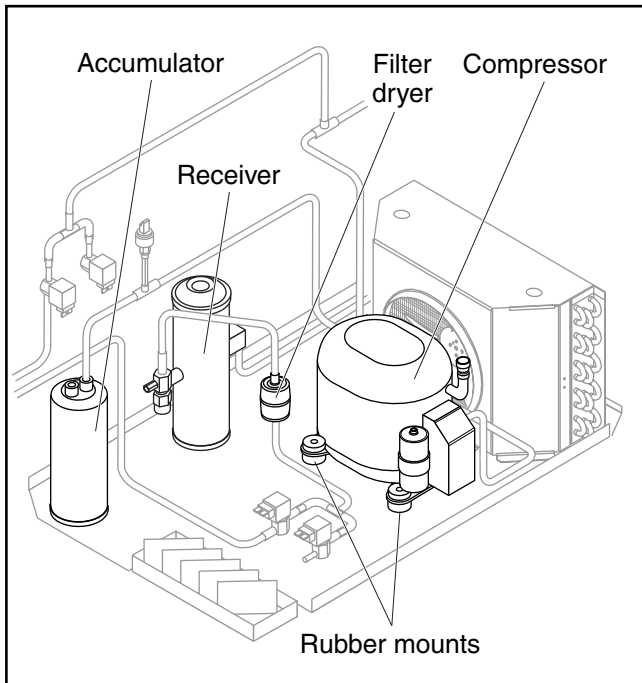


Figure 12. Refrigeration Compartment

4. Unsolder the refrigeration lines at the compressor (Figure 12).
5. Tag and disconnect the wiring harness at the compressor.
6. Remove four screws securing the compressor to the refrigeration unit.
7. Remove compressor and four isolation rubber mounts.
8. Reverse the above steps to install a replacement or repaired compressor.

ACCUMULATOR/RECEIVER

1. Disconnect power from the refrigeration unit.
2. Remove the louvered access end panel as described in COVERS AND PANELS.
3. Refer to the EPA guidelines for RECOVERY, PURGING/TESTING AND RECHARGING REFRIGERATION UNIT to recover the refrigerant from the refrigeration system.
4. Remove the insulation jacket from the accumulator (Figure 12).
5. Unsolder the refrigeration lines at the accumulator.
6. Reach underneath refrigeration unit and remove one screw securing the accumulator to the refrigeration unit.
7. Remove the accumulator from the unit.
8. Reverse the above steps to install a replacement accumulator.

FILTER DRYER

1. Disconnect power from the refrigeration unit.
2. Remove the louvered access end panel as described in COVERS AND PANELS.
3. Refer to the EPA guidelines for RECOVERY, PURGING/TESTING AND RECHARGING REFRIGERATION UNIT to recover the refrigerant from the refrigeration system.
4. Unsolder the refrigerant line at the filter dryer (Figure 12).
5. Remove the filter dryer from the refrigeration unit.
6. Reverse the above steps to install a replacement filter dryer.

SOLENOID VALVES

All solenoid valves are identical. Remove as follows:

1. Disconnect power from the refrigeration unit.
2. Remove the louvered access end panel as described in COVERS AND PANELS.

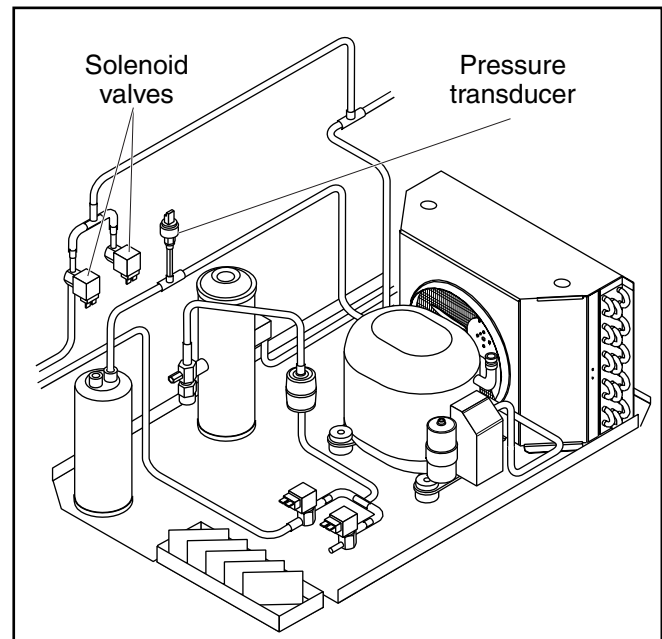


Figure 13. Solenoid Valves and Pressure Transducer

3. Tag and disconnect the wiring harness at the solenoid valve (Figure 13).
4. To check or remove the solenoid coil, remove the nut securing the solenoid coil on the solenoid valve. Remove the solenoid coil and wiring harness.
5. Unsolder the refrigeration lines at the solenoid valve.

6. Remove the solenoid valve from the refrigeration unit.
7. Reverse the above steps to install a replacement solenoid coil or replacement solenoid valve.

PRESSURE TRANSDUCER

1. Disconnect power from the refrigeration unit.
2. Remove the louvered access end panel as described in COVERS AND PANELS.
3. Tag and disconnect the wiring harness from the pressure transducer (Figure 13).
4. While holding pressure transducer mount, use pliers to remove the pressure transducer from the Schrader access valve.
5. Reverse the above steps to install a replacement pressure transducer. Apply leak lock to the pressure transducer threads before installation.

BOX TEMPERATURE SENSOR

1. Disconnect power from the refrigeration unit.
2. Remove the drawer as described previously.
3. Remove the rear panel as described in COVERS AND PANELS.
4. Reach inside the box and remove the temperature sensor mounting screw (Figure 14).

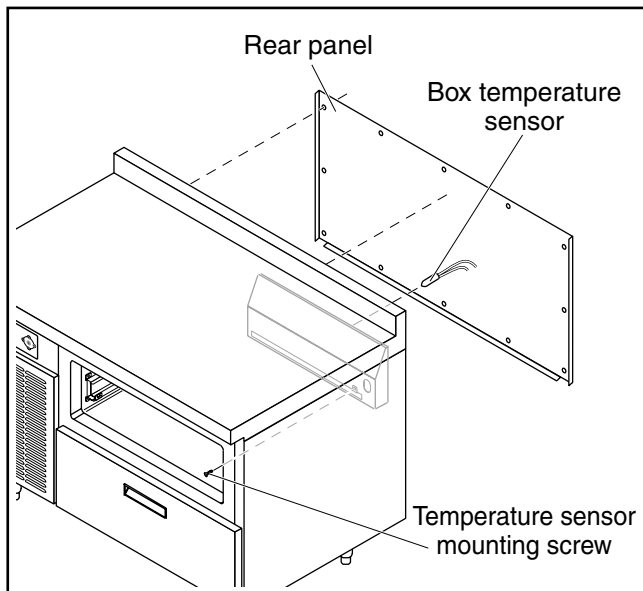


Figure 14. Box Temperature Sensor

5. Tag and disconnect the wiring harness from the box temperature sensor.

6. Remove the temperature sensor mounting screw and remove the box temperature sensor from the rear.
7. Reverse the above steps to install a replacement box temperature sensor.

DISPLAY CONTROL BOARD

1. Disconnect power from the refrigeration unit.
2. Remove the louvered access end panel as described in COVERS AND PANELS.
3. Remove the front louvered panel as described in COVERS AND PANELS.
4. Inside the machine compartment, tag and disconnect the wiring harness from the display control board (Figure 15).

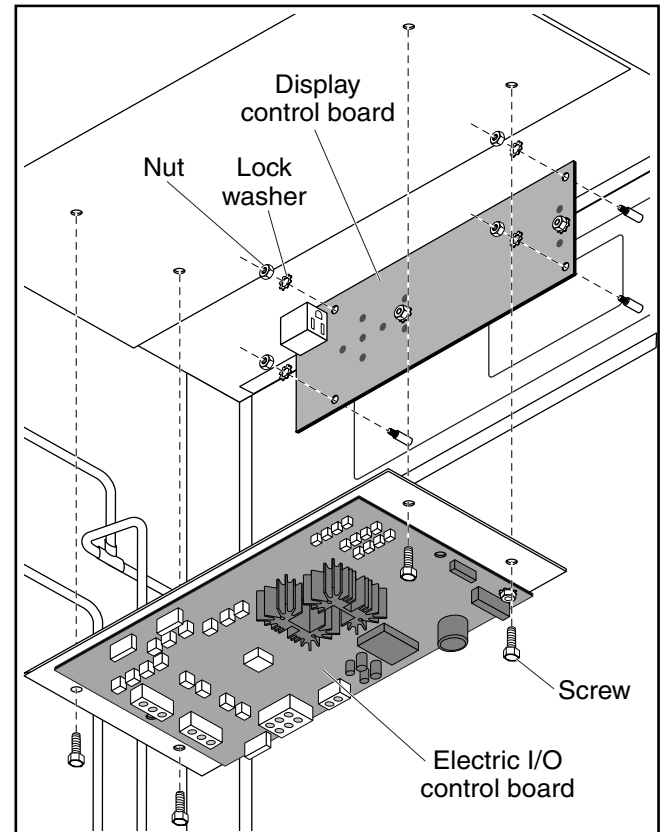


Figure 15. Control Boards

5. Remove four nuts and four lock washers from the display control board.
6. Carefully remove the display control board from the machine compartment.
7. Reverse the above steps to install a replacement display control board.

ELECTRIC INPUT/OUTPUT (I/O) CONTROL BOARD

CAUTION

ELECTROSTATIC SENSITIVE ASSEMBLY; USE PRECAUTIONARY PROCEDURES WHEN HANDLING CIRCUIT CARD ASSEMBLIES.

1. Disconnect power from the refrigeration unit.
2. Remove the front louvered panel as described in COVERS AND PANELS.
3. Remove the louvered access end panel as described in COVERS AND PANELS.

NOTE: The electric input/output (I/O) control board is mounted on the inside top of the machine compartment.

4. Tag and disconnect the wiring harness from the electric I/O control board (Figure 16).
5. Remove four screws securing the electric I/O control board to the machine compartment.
6. Remove the electric I/O control board from the refrigeration unit.
7. Reverse the above steps to install a replacement electric I/O control board.

LEGS

DANGER

Use a jack to lift the refrigeration unit off the ground just far enough to remove the leg. Place blocking underneath the refrigeration unit. Do not work underneath a raised unit without proper blocking. Do not lift the unit more than necessary to remove the leg. Lifting the unit too far can make the unit unstable.

1. Place a jack underneath the refrigeration unit as close as possible to the leg (Figure 16). Lift the unit just high enough to remove the leg from underneath the refrigeration unit. Place blocking underneath the unit to prevent the unit from falling during removal of the leg.
2. Remove four screws from the upper portion of the leg.
3. Remove the leg from the refrigeration unit.
4. Reverse the above steps to install a replacement leg.

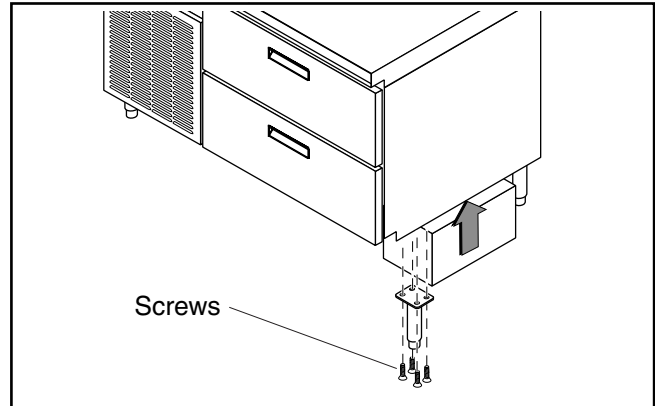


Figure 16. Leg Removal

CASTERS

DANGER

Use a jack to lift the refrigeration unit off the ground just far enough to remove the leg. Place blocking underneath the refrigeration unit. Do not work underneath a raised unit without proper blocking. Do not lift the unit more than necessary to remove the caster. Lifting the unit too far can make the unit unstable.

1. Place a jack underneath the refrigeration unit as close as possible to the caster (Figure 17). Lift the unit up just high enough to remove the caster from underneath the refrigeration unit. Place blocking underneath the unit to prevent the unit from falling during removal of the caster.
2. Remove four screws from the upper portion of the caster.
3. Remove the caster from the refrigeration unit.
4. Reverse the above steps to install a replacement caster.

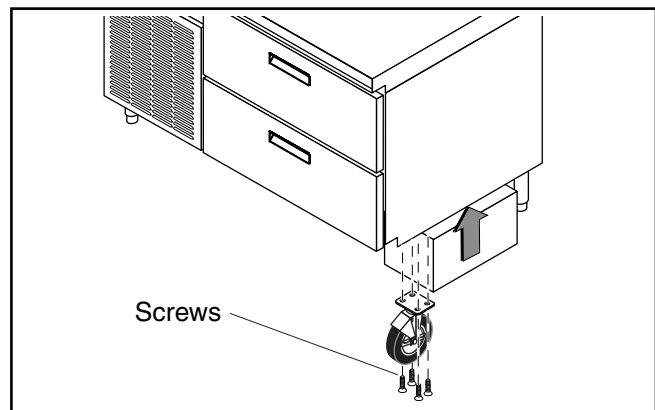


Figure 17. Caster Removal

CONTROL CONSOLE

The control console contains the data display and control buttons (Figures 18 and 19) needed to operate the drawers. The menus can be accessed by pressing and holding the **i** (Enter) button for approximately 5 seconds. The various screens used to monitor unit operation and to change settings will time out after 30 seconds. The exception is the diagnostics screen which does not time out.

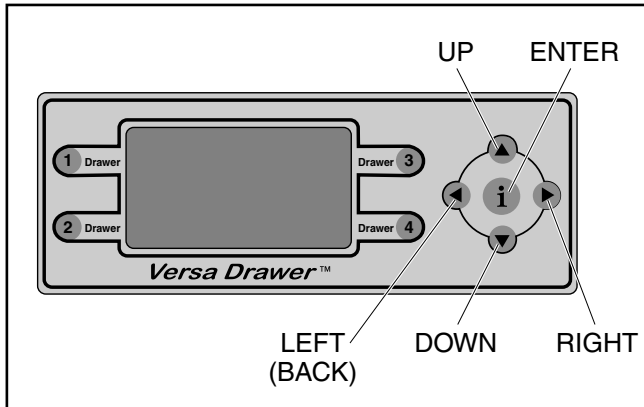


Figure 18. 4-Drawer Console Display

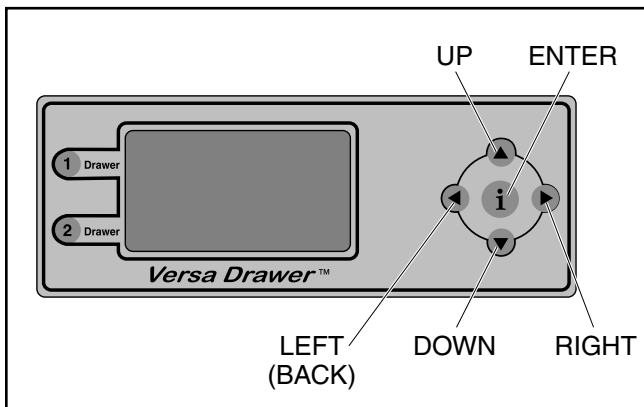


Figure 19. 2-Drawer Console Display

CHANGING DRAWER MODES

NOTE: At anytime while using the control, go back to the previous screen by pressing the LEFT arrow.

1. Press the desired drawer tab on the display.
2. Press the UP or DOWN arrows to the desired mode (Refrigerate, Freeze, Chill, or Thaw) (Figure 20).

NOTE: The desired mode will display with parenthesis when selected.

3. Press the drawer tab again to lock the desired mode setting.



Figure 20. Drawer Mode Display
(2-Drawer Display shown)



CAUTION

Only qualified technicians should access the following programming menus.

MANUAL DEFROST

NOTE: Both buttons must be pressed within one second to manually set defrost.

To manually set a drawer to defrost, press the desired drawer tab (Figure 20) and then very quickly press **i** (Enter). To turn off manual defrost, press the desired drawer tab and very quickly press **i** (Enter).

PROGRAM MENU

NOTE: At any time while using the control, go back to the previous screen by pressing the LEFT arrow.

The Program Menus can be accessed by pressing and holding **i** (Enter) for five seconds.

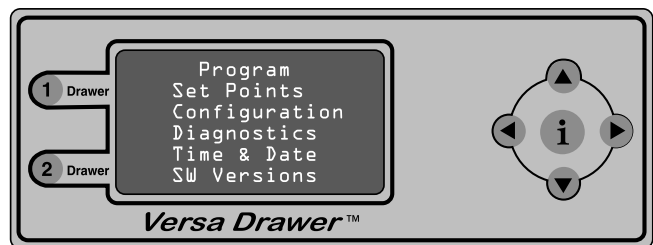
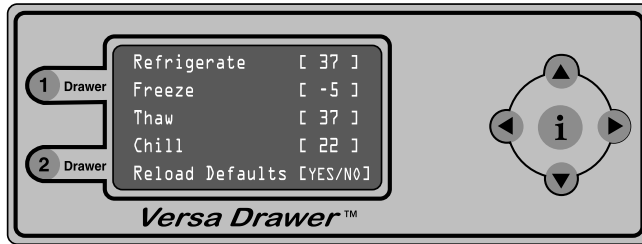


Figure 21. Program Menu
(2-Drawer Display Shown)

1. Select the desired function by pressing the UP or DOWN arrows (Figure 21).
2. Press **i** (Enter) to select the function.

SET POINTS

Once in the Program Menu press the UP or DOWN arrows to Set Points and press **i** (Enter) (Figure 22).

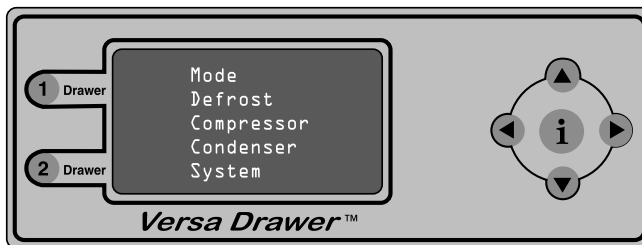


**Figure 22. Set Points Menu
(2-Drawer Display Shown)**

1. Select a function from the Set Points menu by pressing the UP or DOWN arrows to the desired function and press **i** (Enter). This selection will allow the temperature setting to be adjusted.
2. Press **i** (Enter) to lock in the desired temperature setting.

CONFIGURATION

Once in the Program Menu press the UP or DOWN arrows to Configuration and press **i** (Enter) (Figure 23).

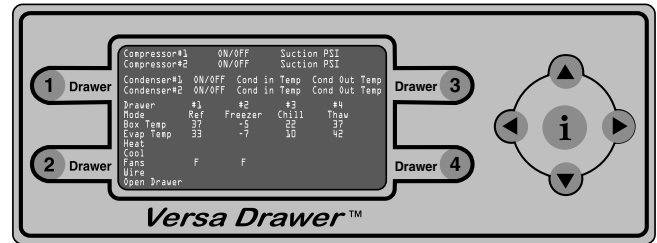


**Figure 23. Configuration Menu
(2-Drawer Display Shown)**

1. Select a function from the Configuration Menu by pressing the UP or DOWN arrows to the desired function and pressing **i** (Enter) allowing the function to be adjusted or viewed.
 - **Mode:** System temperature set points differential
 - **Defrost:** Defrost times and set points
 - **Compressor:** Compressor run times
 - **Condenser:** Condenser temperatures and run times
 - **System:** Drawer open timeout, data log interval, run frame heaters, metric, language, reload defaults
2. Press **i** (Enter) to lock in an adjusted setting or press the LEFT arrow to go back.

DIAGNOSTICS

Once in the Program Menu press the UP or DOWN arrows to Diagnostics and press **i** (Enter) for diagnostics display (Figure 24).



**Figure 24. Diagnostics Menu
(4-Drawer Display Shown)**

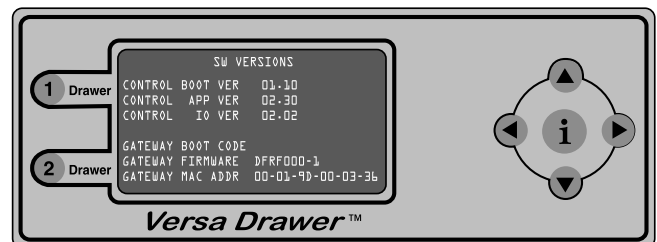
TIME AND DATE

Once in the Program Menu press the UP or DOWN arrows to Time & Date and press **i** (Enter) allowing the time and date to display.

1. Adjust the time and date by pressing the RIGHT arrow to the desired digit location and the UP or DOWN arrow to the proper digit.
2. Press **i** (Enter) to lock in the setting.
3. Repeat for each digit location on the screen.
4. When completed press **i** (Enter) then the LEFT arrow to exit the Time and Date screen.

SOFTWARE VERSIONS

Once in the Program Menu press the UP or DOWN arrows to SW Versions (Figure 25) and press **i** (Enter) allowing the software versions to display.



**Figure 25. Software Versions Display
(2-Drawer Display Shown)**

NOTE: The software versions in Figure 25 are shown as examples only and are not the actual software versions.

TROUBLESHOOTING

GENERAL

The troubleshooting chart below provides common symptoms, causes and remedies. The chart cannot cover every problem that may occur. However, the most common problems, as shown in the table, can be used to troubleshoot many symptoms. The chart used in conjunction with the diagnostics screen provides good troubleshooting information.

DIAGNOSTICS

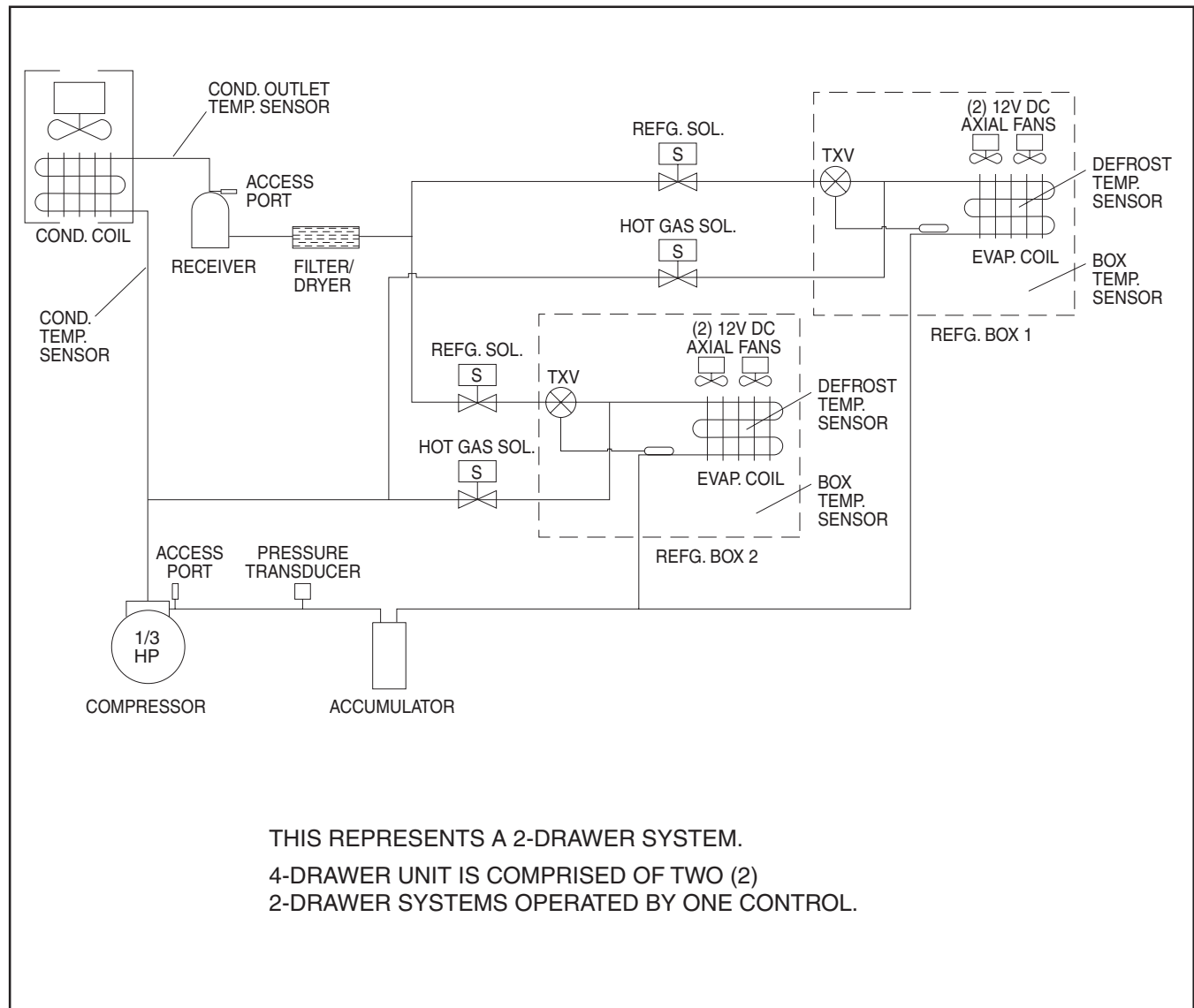
The diagnostics screen as described above provides an ongoing display of drawer data. The diagnostics screen does not time out but remains available for observation by a service technician. This screen can be accessed as described above.

TROUBLESHOOTING CHART

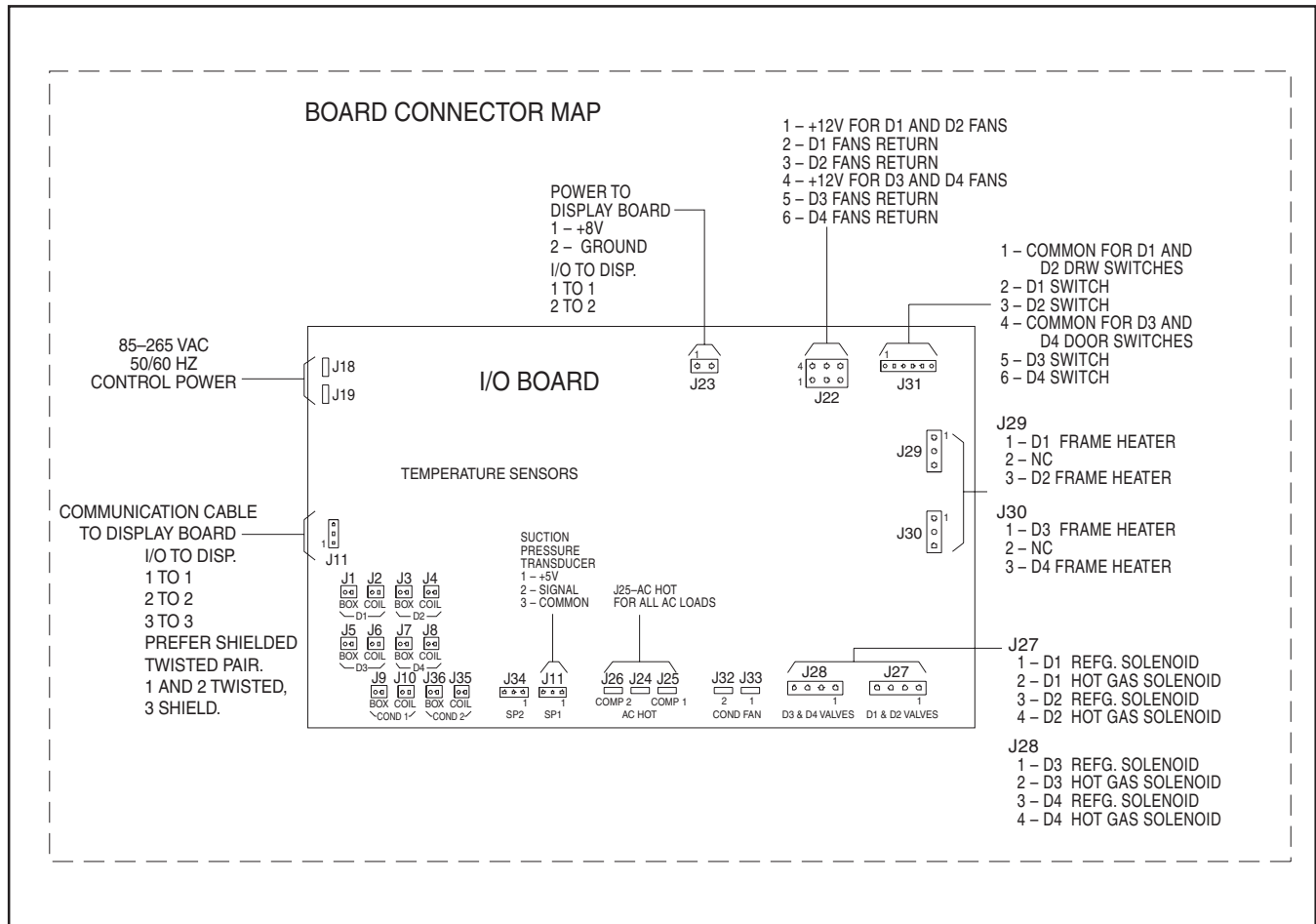
SYMPTOM	CAUSE/REMEDY
Unit does not run.	Make sure the unit is plugged into a proper power source. Check for a blown fuse or tripped breaker. Test the outlet for the correct voltage (120V). Inspect the electrical cord for damage.
Unit has power but does not run.	Check for power at the junction box inside the compressor compartment. Check for power coming out of the control board (12VDC) at the terminal for the control board. If no power is coming out of the control board, replace the control board.
Compressor does not run but the fan works.	Check voltage from the control board. Make certain there is ample air flow for the evaporator and condenser coils. Clean the condenser coils. Test the compressor relays for overload. Test the compressor for open or shorted windings. Check control settings and make sure the control is calling for the fans to run.
Evaporator fans do not run.	Check for voltage (12VDC) at the fan motors. Check for obstructions to the fan blade. Check to see if the door switch is open or is shorted out. Check control settings and make sure the control is calling for the fans to run.
Condenser fans do not run.	Check for voltage (12VDC) at the fan motors. Check for obstructions to the fan blade. Check control settings and make sure the control is calling for the fans to run. Check the temperature sensor in the condenser coil to see if it is open or shorted.
Unit is not reaching desired temperature.	Check to see that the unit is in the correct mode of operation. Check to see that the unit is set at the desired set point. Check to see if the box temperature sensor is open or shorted. Listen to determine if the compressor is cycling or if the unit is continuously running. Check evaporator air flow. Check for ice buildup on the evaporator coils. Check the drawers and gaskets to ensure they seal properly.
Unit is getting too cold.	Check to see that the unit is in the correct mode of operation. Check to determine that the unit is set at the desired set point. Check to determine if the box temperature sensor is open or shorted. Listen to determine if the compressor is cycling or if the unit is continuously running.

SYMPTOM	CAUSE/REMEDY
Unit is noisy.	<p>Check for loose or broken fan blades.</p> <p>Check for ice buildup on the evaporator coil.</p> <p>Inspect the compressor mounts.</p> <p>Check for loose or missing screws on the compressor compartment louvers.</p>
Unit runs continuously.	<p>Clean the condenser coils.</p> <p>Check the drawer gaskets.</p> <p>Check to determine if the box temperature sensor is open or shorted.</p> <p>Check refrigerant charge.</p> <p>Check the compressor.</p> <p>Check the evaporator fans.</p>
Unit short cycles.	<p>Check the drawer gaskets.</p> <p>Check to determine if the box temperature sensor is open or shorted.</p> <p>Check refrigerant charge.</p> <p>Check the compressor.</p> <p>Check condenser fans.</p> <p>Check TXV.</p>
Unit evaporator coils are freezing up.	<p>Clean the condenser coils.</p> <p>Check the drawer gaskets.</p> <p>Check to determine if the box temperature sensor is open or shorted.</p> <p>Check refrigerant charge.</p> <p>Check the evaporator fans and air flow.</p> <p>Check to assure that the hot gas loop is more than 1 inch away from either end of the evaporator drain pan.</p> <p>Check the TXV.</p>
Water on floor outside the unit.	<p>Check the evaporator drain pan and drain lines.</p> <p>Check the condensate drain pan.</p> <p>Make sure the condensate wicks are not missing.</p>
Water inside the unit.	<p>Check the evaporator drain pan and drain lines.</p> <p>Verify proper condensate removal.</p> <p>Verify proper condensate pan installation.</p>
Unit is showing "Drawer Open" on the display.	<p>Close drawer.</p> <p>Check drawer switch.</p> <p>Check control.</p>
Unit is showing "Out of Temperature Range" on the display.	<p>Check to determine that the unit is in the correct mode of operation.</p> <p>Check to determine that the unit is set at the desired set point.</p> <p>Check to determine if the box temperature sensor is open or shorted.</p> <p>Check to determine if any drawers are open.</p>
The unit has power but the display is not lit.	<p>Check voltage at the display plug on the control.</p> <p>If there is voltage at the display plug on the control board, replace the display board.</p> <p>If there is not voltage at the display plug on the control board, replace the control board.</p>
Unit alarm is sounding after losing power.	<p>Press the ⏏ (Enter) button on the display once to make the alarm quit. This will then show on the display the time that the unit last had power and the time that the unit had power restored. Press the ⏏ (Enter) button again to show the main display screen.</p>
Unit alarm is sounding – compressor is failing.	<p>Check the unit pressures.</p> <p>Check the suction line pressure transducer.</p>

CIRCUIT AND CONTROL DIAGRAMS

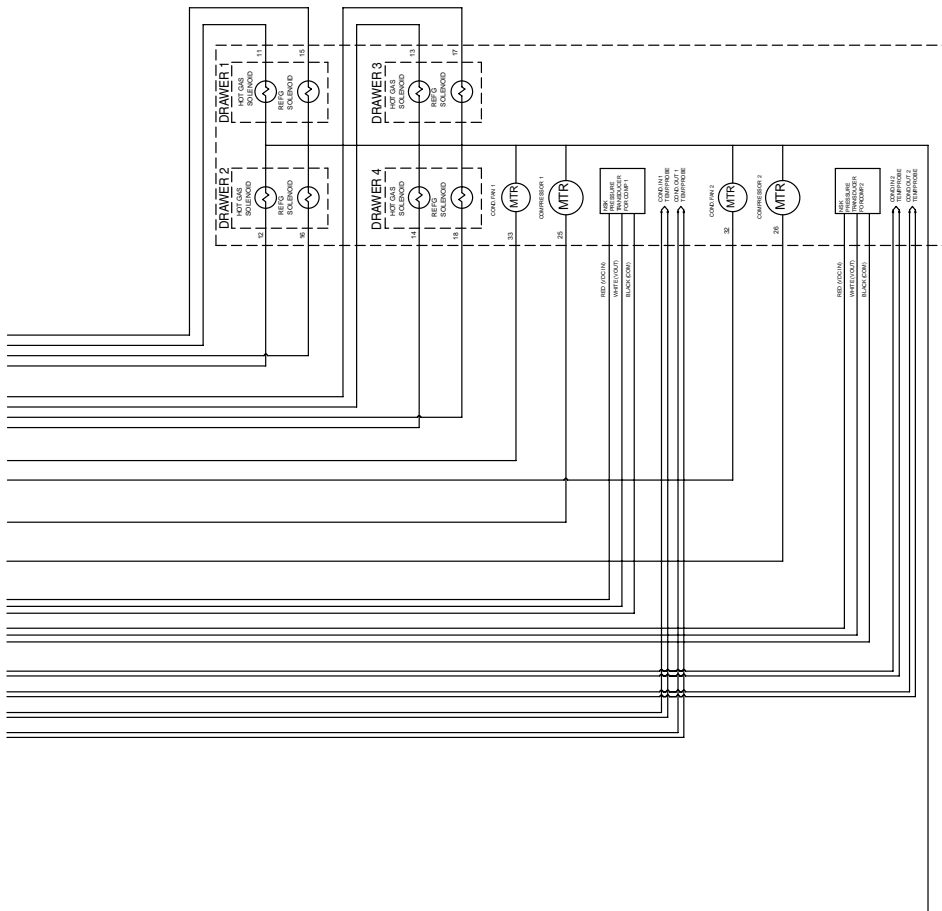
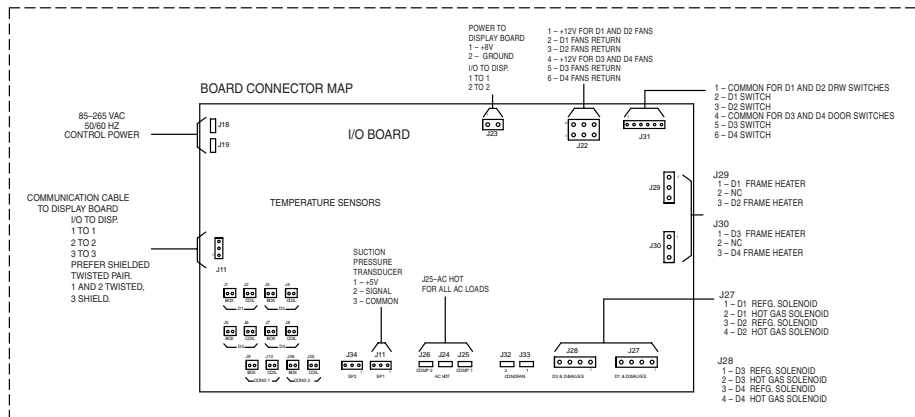


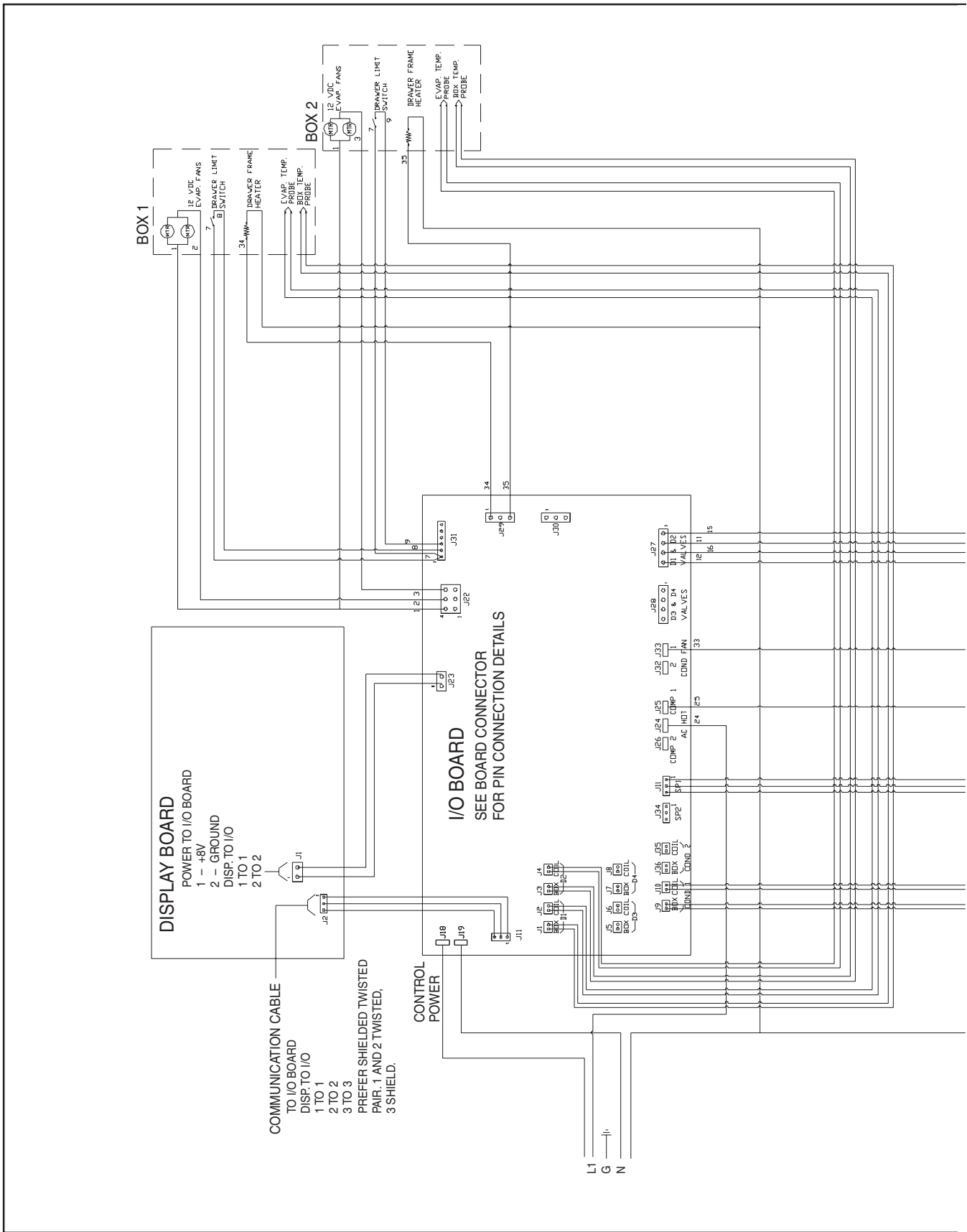
Refrigeration Schematic



Versa Drawer Electric Input/Output (I/O) Control Board Connector Map







Versa Drawer 2-Drawer Wiring Diagram (1 of 2)

STANDARD LABOR GUIDELINES TO REPAIR OR REPLACE PARTS ON DELFIELD EQUIPMENT UNDER WARRANTY

Advice and recommendations given by Delfield Service Technicians do not constitute or guarantee any special coverage.

A maximum of 1 hour is allowed to diagnose a defective component.

A maximum of 1 hour is allowed for retrieval of parts not in stock.

A maximum travel distance of 100 miles round trip and 2 hours will be reimbursed.

Overtime, installation/start-up, normal control adjustments, general maintenance, glass breakage, freight damage, and/or correcting an end-user installation error will not be reimbursed under warranty unless pre-approved with a Service Work Authorization from Delfield. You must submit the number with the service claim.

LABOR OF 1 HOUR IS ALLOWED TO REPLACE:

- Solenoid Coil
- Hi-limit/Thermal Protector Switch
- Compressor Start Components and Overload Protector
- Evaporator/Condenser Fan Motor and Blade
- Door Hinges, Locks and Gaskets

LABOR OF 2 HOURS TO REPLACE:

- Drawer Tracks/Cartridges
- Pressure Control
- Microprocessor Control
- Solenoid Valve
- Locate/Repair

LABOR OF 3 HOURS TO REPLACE:

- Expansion Valve
- Condenser or Evaporator Coil

LABOR OF 4 HOURS TO REPLACE:

Compressor

This includes recovery of refrigerant and leak check.

\$55.00 maximum reimbursement for refrigerant recovery (includes recovery machine, pump, torch, oil, flux, minor fittings, solder, brazing rod, nitrogen, or similar fees.)

Refrigerants

R404A A maximum of \$12.00/lb. or 75¢/oz. will be reimbursed.

MANUFACTURER'S LIMITED LIFETIME WARRANTY

Delfield warrants to the original purchaser-user, subject to the limitations and exclusions set forth below, that the ABS interior of the Delfield models identified above will be free of manufactured defects for as long as the equipment is owned by the original purchaser-user and is in operation.

What is covered

For purposes of this Warranty, interior liner is defined as the portion of the interior liner which is made of ABS material. This Warranty applies only to products sold and installed after March 1, 2000 in the United States, Canada, Puerto Rico, and Mexico. For purposes of this Warranty, lifetime is defined as the expected usable life for the equipment of 12 years.

Delfield's Obligation

Limited strictly to shipping OEM replacement parts or repair kits for any ABS covered interior. A Delfield authorized service dealer and Delfield's Service Department must confirm the liner defect has occurred under normal conditions and is not due to misuse as defined below. All decisions regarding the ABS interior shall be made by Delfield's Service Department and shall be binding upon the parties. No labor or service charges or allowances are covered by this warranty. Warranty service must be performed by a Delfield approved authorized service agent.

User Responsibility

The product must be installed, cleaned and maintained as described in the Installation & Operation manual which is furnished with the product. Only approved replacement parts may be used. Failure to adhere to the requirements of this paragraph may void warranty coverage.

Procedures

All claims for replacement parts or repair kits must be made through a Delfield Parts Depot or an authorized Delfield dealer. The defective part invoice must be returned

to Delfield within 15 days after the date of service to be eligible for warranty coverage. All claims must include the model, serial number, an original date of installation and customer identification. Use of parts other than original Delfield replacement parts will not be covered.

Exclusions

This warranty does not cover labor, service, charges for travel time, mileage, or premium charges. This warranty also does not include defects resulting from:

Operation of the product beyond the specification set forth in the Service and Installation Manual.

Failure to clean and maintain the product as described in the Service and Installation Manual.

Installation of the product in a manner other than as set forth in the Service and Installation.

Use or installation of replacement parts not approved by Delfield; or The introduction of hot items directly onto the ABS liner.

This warranty is in lieu of all other warranties or guarantees of any kind, express or implied, except Delfield's One Year Parts and 90-Day Warranty 4400 Series. ANY IMPLIED WARRANTIES OR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED AND EXCLUDED. IN NO EVENT SHALL DELFIELD BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND OR NATURE, OR FOR ANY DEFECT RESULTING IN WHOLE OR IN PART FROM MISUSE, ALTERATION, IMPROPER INSTALLATION OR INADEQUATE MAINTENANCE OF THE PRODUCT OR ANY PART THEREOF.

No part or assembly which has been subject to accident, alteration or misuse, or which has not been installed or serviced in accordance with the Installation & Operation Manual furnished with the product, or which is from equipment on which the serial number has been altered or removed, shall be covered by this warranty.



STANDARD ONE YEAR WARRANTY (One year parts and labor)

The Delfield Company ("Delfield") warrants to the Original Purchaser of the Delfield product (herein called the "Unit") that such Unit, and all parts thereof, will be free from defects in material and workmanship under normal use and service for a period of one (1) year from the date of shipment of the Unit to the Original Purchaser **or, if the Original Purchaser returns the warranty card completely filled out including the date of installation within thirty (30) days of receipt of the Unit, one (1) year from the date of installation.** During this one year warranty period, Delfield will repair or replace any defective part or portion thereof returned to Delfield by the Original Purchaser which Delfield determines was defective due to faulty material or workmanship. The Original purchaser will pay all labor, crating, freight and related costs incurred in the removal of the Unit of defective component and shipment to Delfield, except that during a period of either ninety (90) days from the date of shipment of the Unit to the Original Purchaser or, if the Original Purchaser returns the warranty card completely filled out including the date of installation within thirty (30) days of receipt of the Unit, ninety (90) days from the date of installation Delfield will pay all related labor costs. Delfield will pay the return costs if the Unit or part thereof was defective.

The term "Original Purchaser" as used herein means that person, firm, association, or corporation for whom the Unit was originally installed.

This warranty does not apply to any Unit or part thereof that has been subjected to misuse, neglect, alteration, or accident, such as accidental damage to the exterior finish, operated contrary to the recommendations specified by Delfield; or repaired or altered by anyone other than Delfield in any way so as to, in Delfield's sole judgement, affect its quality or efficiency. This warranty does not apply to any Unit that has been moved from the location where it was originally installed. This warranty also does not cover the refrigerator drier or the light bulbs used in the Unit. **The warranty is subject to the user's normal maintenance and care responsibility as set forth in the Service and Installation Manual, such as cleaning the condenser coil, and is in lieu of all other obligations of Delfield. Delfield neither assumes, nor authorizes any other person to assume for Delfield, any other liability in connection with Delfield's products.**

Removal or defacement of the original Serial Number or Model Number from any Unit shall be deemed to release Delfield from all obligations hereunder or any other obligations, express or implied.

Parts furnished by suppliers to Delfield are guaranteed by Delfield only to the extent of the original manufacturer's express warranty to Delfield. Failure of the Original Purchaser to receive such manufacturer's express warranty to Delfield. Failure of the Original Purchaser to receive such manufacturer's warranty shall in no way create any warranty, expressed or implied, or any other obligation or liability on Delfield's part in respect thereof.

IF THE CUSTOMER IS USING A PART THAT RESULTS IN A VOIDED WARRANTY AND A DELFIELD AUTHORIZED REPRESENTATIVE TRAVELS TO THE INSTALLATION ADDRESS TO PERFORM WARRANTY SERVICE, THE SERVICE REPRESENTATIVE WILL ADVISE CUSTOMER THE WARRANTY IS VOID. SUCH SERVICE CALLS WILL BE BILLED TO CUSTOMER AT THE AUTHORIZED SERVICE CENTER'S THEN APPLICABLE TIME AND MATERIALS RATES. CONSIDER: CUSTOMER MAY INITIATE A SERVICE AGREEMENT WITHOUT PARTS COVERAGE.

If shipment of a replacement part is requested prior to the arrival in the Delfield factory of the part claimed to be defective, the Original Purchaser must accept delivery of the replacement part of a C.O.D. basis, with credit being issued after the part has been received and

inspected at Delfield's plant and determined by Delfield to be within this warranty.

Under no condition does this warranty give the Original Purchaser the right to replace the defective Unit with a complete Unit of the same manufacturer or of another make. Unless authorized by Delfield in writing, this warranty does not permit the replacement of any part, including the motor-compressor, to be made with the part of another make or manufacturer.

No claims can be made under this warranty for spoilage of any products for any reason, including system failure.

The installation contractor shall be responsible for building access, entrance and field conditions to insure sufficient clearance to allow any hood(s), vent(s), or Unit(s) if necessary, to be brought into the building. Delfield will not be responsible for structural changes or damages incurred during installation of the Unit or any exhaust system.

Delfield shall not be liable in any manner for any default or delay in performance hereunder caused by or resulting from any contingency beyond Delfield's control, including, but not limited to, war, governmental restrictions or restraints, strike, lockouts, injunctions, fire, flood, acts of nature, short or reduced supply of raw materials, or discontinuance of the parts by the original part manufacturer.

Except as provided in any Additional Four Year Protection Plan, if applicable, and the Service Labor Contract, if applicable, the foregoing is exclusive and in lieu of all other warranties, whether written or oral, express or implied. This warranty supersedes and excludes any prior oral or written representations or warranties. Delfield expressly disclaims any implied warranties of merchantability, fitness for a particular purpose of compliance with any law, treaty, rule or regulation relating to the discharge of substances into the environment. The sole and exclusive remedies of any person relating to the Unit, and the full liability of Delfield for any breach of this warranty, will be as provided in this warranty.

Other than this Delfield Standard One Year Limited Warranty, any applicable Delfield Additional Four Year Protection Plan or applicable Delfield Service Labor Contract, the Original Purchaser agrees and acknowledges that no other warranties are offered or provided in connection with or for the unit or any other part thereof.

In no event will Delfield be liable for special, incidental or consequential damages, or for damages in the nature of penalties.

IF DURING THE WARRANTY PERIOD, CUSTOMER USES A PART FOR THIS DELFIELD EQUIPMENT OTHER THAN AN UNMODIFIED NEW OR RECYCLED PART PURCHASED DIRECTLY FROM DELFIELD OR ANY OF ITS AUTHORIZED SERVICE CENTERS AND/OR THE PART BEING USED IS MODIFIED FROM ITS ORIGINAL CONFIGURATION, THIS WARRANTY WILL BE VOID. FURTHER, DELFIELD AND ITS AFFILIATES WILL NOT BE LIABLE FOR ANY CLAIMS DAMAGES OR EXPENSES INCURRED BY THE CUSTOMER WHICH ARISE DIRECTLY OR INDIRECTLY, IN WHOLE OR IN PART, DUE TO THE INSTALLATION OF ANY MODIFIED PART AND/OR PART RECEIVED FROM AN UNAUTHORIZED SERVICE CENTER. If the warranty becomes void, Customer may purchase from Delfield, if available, a Service Agreement or service at the then current time and materials rate.

For more information on Delfield warranty's log on and check out the service section of our web site at www.delfield.com.

ADDITIONAL FOUR YEAR PROTECTION PLAN (for Motor-Compressor only)

Installation

Delfield Model#	Serial #	Installation Date
<input type="text"/>	<input type="text"/>	<input type="text"/>

In addition to the Standard One Year Warranty on the Motor-Compressor contained in the above listed Delfield product (the "Unit"), The Delfield Company ("Delfield") also agrees to repair, or exchange with similar or interchangeable parts in design and capacity at Delfield's option, the defective Motor-Compressor contained in the Unit (the "Motor-Compressor"), or any part thereof, for the Original Purchaser only, at any time during the four (4) years following the initial one (1) year period commencing on the date of installation for the Original Purchaser. **Failure of the Original Purchaser to register the registration card containing the Original Purchaser's name, address, date of installation, model number and serial number of the Unit containing the Motor-Compressor within 30 days from the date of installation shall void this warranty.** This additional warranty is only available if the Motor-Compressor is inoperative due to defects in material or factory workmanship, as determined by Delfield in its sole judgment and discretion. The Original Purchaser shall be responsible for returning the defective Motor-Compressor to Delfield prepaid, F.O.B. at the address shown on the back cover of this manual.

The term "Original Purchaser" as used herein means that person, firm, association or corporation for whom the Unit was originally installed.

The term "Motor-Compressor" as used herein does not include unit base, air- or water-cooled condenser, receiver, electrical accessories such as relay, capacitors, refrigerant controls, or condenser fan/motor assembly. This warranty does not cover labor charges incidental to the replacement of parts. This warranty further does not include any equipment to which said condensing unit is connected, such as cooling coils, temperature controls or refrigerant metering devices. This warranty shall be void if the Motor-Compressor, in Delfield's sole judgment, has been subjected to misuse, neglect, alteration or accident, operated contrary to the recommendations specified by the Unit manufacturer, repaired or altered by anyone other than Delfield in any way so as, in Delfield's sole judgment, to affect its quality or efficiency or if the serial number has been altered, defaced or removed. This Warranty does not apply to a Motor-Compressor in any Unit that has been moved from the location where it was originally installed. The addition of methyl chloride to the condensing unit or refrigeration system shall void this warranty.

General Conditions

Delfield shall not be liable in any manner for any default or delay in performance hereunder caused by or resulting from any contingency beyond Delfield's control, including, but not limited to, war, governmental restrictions or restraints, strike, lockouts, injunctions, fire, flood, acts of nature, short or reduced supply of raw materials, or discontinuance of any part or the Motor-Compressor by the unit manufacturer.

Replacement of a defective Motor-Compressor is limited to one (1) Motor-Compressor by us during the four (4) year period. Delfield shall replace the Motor-Compressor at no charge.

This warranty does not give the Original Purchaser of the Motor-Compressor the right to purchase a complete replacement Motor-Compressor of the same make or of another make. It further does not permit the replacement to be made with a Motor-Compressor of another kind unless authorized by Delfield. In the event Delfield authorizes the Original Purchaser to purchase a replacement Motor-Compressor locally, only the wholesale cost of the Motor-Compressor is refundable.

Expressly excluded from this warranty are damages resulting from spoilage of goods.

Except as provided in any applicable Standard One Year Limited Warranty or applicable Service Labor Contract, the foregoing is exclusive and in lieu of all other warranties, whether written or oral, express or implied. This Warranty supersedes and excludes any prior oral or written representations or warranties. Delfield expressly disclaims any implied warranties of merchantability, fitness for a particular purpose or compliance with any law, treaty, rule or regulation relating to the Motor-Compressor, and the full liability of Delfield for any breach of this warranty, will be as provided in this warranty.

Other than any applicable Delfield Standard One year Limited Warranty, this Delfield Additional Four Year Protection Plan and any applicable Delfield Service Labor Contract, the Original Purchaser agrees and acknowledges that no other warranties are offered or provided in connection with or for the Motor-Compressor or any part thereof.

In no event will Delfield be liable for special, incidental or consequential damages, or for damages in the nature of penalties.





Mt. Pleasant, MI



Covington, TN

Thank you for choosing Delfield!

Help is a phone call away. Help our team of professional, courteous customer service reps by having your model number and serial number available at the time of your call to (800) 733-8829.

Model: _____ S/N: _____

Installation Date: _____



For a list of Delfield's authorized parts depots, visit our website at www.delfield.com.



980 S. Isabella Rd., Mt. Pleasant, MI 48858, U.S.A. • (989) 773-7981 or (800) 733-8829 • Fax (989) 773-3210 • www.delfield.com
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